BG-UHD-VWP-1X4

1X4 4K 18Gbps UHD VideoWall Processor/Controller with Scaler/Audio and 1X3/1X4/2X2/4X1 Layouts

User Manual
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</table>
Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.

- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.

- Do not expose the product to rain or moisture.

- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.

- Do not use the product beyond the specified temperature, humidity, or power supply specifications.

- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.

- Installation and use of this product must strictly comply with local electrical safety standards.
Introduction

The BG-UHD-VWP-1X4 4K 1x4 Video Wall Processor is a powerful, cost effective, video processor for multiple flat panel displays or projectors. The unit allows users to input HDMI/DisplayPort signals up to 4K2K@60Hz 4:4:4. The embedded scaler converts video signals to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to WUXGA (1920x1200).

The BG-UHD-VWP-1X4 layouts can be modified to fit various applications in digital signage, broadcasting, education, and surveillance systems.

Features

- 4x HDMI outputs
- HDMI and DisplayPort input from 640x480 to 4K2K@60 (YUV 4:4:4), interlaced or progressive
- HDCP compliant
- DisplayPort 1.2a & HDMI 2.0a compliant
- Image parameters and layouts are automatically saved in flash memory of the device and can be recalled for later use
- Firmware upgradable
- The video wall processor can control via USB, push buttons, Ethernet, and IR remote control.
- Resize, position, and zoom for each HDMI output video
- Remote control to switch 1x1, 2x2, 1x3 rotate, and 1x4 modes
- 4K2K60 (YUV 4:4:4) can be divided and displayed onto four 1080p60 TVs (2x2 layout only)

Packing List

- 1x BG-UHD-VWP-1X4
- 1x User Manual
- 1x 1U rack-mounting ear set

- 1x 12V power supply
- 1x Installation software CD
- 1x IR Remote control (15 keys)
# Specifications

<table>
<thead>
<tr>
<th>Model Name</th>
<th>BG-UHD-VWP-1X4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Specifications</strong></td>
<td></td>
</tr>
<tr>
<td>HDCP compliance</td>
<td>Yes</td>
</tr>
</tbody>
</table>
| Video bandwidth     | Input – Single link 600MHz [18Gbps]  
Output – Single-link 225MHz [6.75Gbps] |
| Video support       | Input – 4K2K@60 (4:2:2 8 bits) / 4K2K@60 (4:4:4 8 bits)  
Output – 1920x1080@60 / 1920x1200@60 |
| Video Format Support| HDMI / DisplayPort |
| Audio support       | Yes            |
| ESD protection      | Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge] |
| Input               | 1x HDMI + 1x DisplayPort + 1x USB + 1xRJ45 |
| Output              | 4x HDMI + 1x Stereo |
| Control             | IR remote control / Ethernet / USB (virtual) / Front Panel / Cloud Control |
| Input TMDS signal   | 1.2 Volts [peak-to-peak] |
| HDMI connector      | Type A [19-pin female] |
| Mini-USB connector  | Type A         |
| RJ-45 connector     | WE/SS 8P8C     |
| **Mechanical**      |                |
| Enclosure           | Metal case     |
| Dimensions (L x W x H) |                |
| Model               | 290 x 180 x 44mm [11.4" x 7" x 1.7"] |
| Package             | 376 x 240 x 112mm [1’2” x 9.4” x 4.4”] |
| Carton              | 590 x 510 x405 mm [1’9” x 1’7” x 1’3”] |
| Weight              |                |
| Model               | 1427 g [3.2lbs] |
| Package             | 2077g [4.6lbs] |
| Fixedness           | 1U rack-mount with ears and Wall hanging holes |
| Power supply        | 12V DC         |
| Power Consumption   | 12W            |
| Operation temperature | 0~40°C [32~104°F] |
| Storage temperature | -20~60°C [-4~140°F] |
| Relative humidity   | 20~90% RH [no condensation] |
Hardware Installation

1. Connect the sources to the HDMI / DisplayPort Inputs of the BG-UHD-VWP-1X4.
2. Connect all displays to HDMI Outputs of the BG-UHD-VWP-1X4.
3. Connect the +12V DC power supply to the BG-UHD-VWP-1X4

Application Diagram
Operation Controls and Functions

Front Panel

1. LED indicator:
   - PWR - Power indicator LED
   - LOCK - When the device panel is locked the LED will illuminate.
   - 4K - If source resolution is 4K, the LED indicator will illuminate.
   - Source - When the source is from HDMI the LED indicator will illuminate solid but if the source is from DisplayPort the LED indicator will blink.

2. IR SENSOR: IR sensor for receiving the IR commands from IR remote

3. Control buttons:
   - Button 1 (Source) - Source setting (HDMI or DisplayPort)
   - Button 2 (LOCK) - Press button for 3 seconds will enable/disable device locked
   - Button 3 (2x2) - Fast switch to 1x1 and 2x2
   - Button 4 (+90°) - Fast switch to 3x1 90° and 4x1 90°
   - Button 5 (-90°) - Fast switch to 3x1 -90° and 4x1 -90°
   - Button 6 (Preset 1)
   - Button 7 (Preset 2)
Rear Panel

4. Power Switch: Power ON/OFF switch
5. +12V DC: 12V DC power jack
6. Dip Switch: For firmware update (Default mode: on)
7. USB virtual COM
8. Ethernet: Ethernet control port
9. Stereo audio output – L
10. Stereo audio output – R
11. HDMI INPUT
12. DisplayPort INPUT
13. Output 1-4: HDMI outputs

Supported Resolution

<table>
<thead>
<tr>
<th>Input resolution</th>
<th>Output resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>720x480@60Hz</td>
<td>640x480@60Hz</td>
</tr>
<tr>
<td>720x576@50Hz</td>
<td>720x480@60Hz</td>
</tr>
<tr>
<td>1280x720@60Hz</td>
<td>720x576@60Hz</td>
</tr>
<tr>
<td>1920x1080@30Hz</td>
<td>800x600@60Hz</td>
</tr>
<tr>
<td>1920x1080@60Hz</td>
<td>1024x768@60Hz</td>
</tr>
<tr>
<td>4K2K@30Hz</td>
<td>1280x720@60Hz</td>
</tr>
<tr>
<td>4K2K@60Hz (4:2:2 8 bits)</td>
<td>1280x768@60Hz</td>
</tr>
<tr>
<td>4K2K@60Hz (4:4:4 8 bits)</td>
<td>1280x960@60Hz</td>
</tr>
<tr>
<td></td>
<td>1280x1024@60Hz</td>
</tr>
<tr>
<td></td>
<td>1366x768@60Hz</td>
</tr>
<tr>
<td></td>
<td>1440x900@60Hz</td>
</tr>
<tr>
<td></td>
<td>1680x1050@60Hz</td>
</tr>
<tr>
<td></td>
<td>1920x1080@60Hz</td>
</tr>
<tr>
<td></td>
<td>1920x1200@60Hz</td>
</tr>
<tr>
<td></td>
<td>1600x1200@60Hz</td>
</tr>
</tbody>
</table>
Operation

IR Remote Control

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFO</td>
<td>Display device status (IN/OUT Resolution, EDID, Layout)</td>
</tr>
<tr>
<td>MUTE</td>
<td>Turn off the stereo audio output</td>
</tr>
<tr>
<td>POWER</td>
<td>Power ON/OFF the video wall processor</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Fast switch to VW1x1 (Full Screen)</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Source setting (HDMI or DisplayPort)</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Fast switch to VW3x1 (+90°)</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Fast switch to VW2x2</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Fast switch to VW4x1 (-90°)</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Fast switch to VW4x1 (+90°)</td>
</tr>
<tr>
<td>PRESET-</td>
<td>Previous custom layout</td>
</tr>
<tr>
<td>PRESET+</td>
<td>Next custom layout</td>
</tr>
<tr>
<td>Factory Reset</td>
<td>Factory default reset</td>
</tr>
<tr>
<td>2160p 60</td>
<td>Default EDID 2160p 60</td>
</tr>
<tr>
<td>2160p 30</td>
<td>Default EDID 2160p 30</td>
</tr>
<tr>
<td>1080p 60</td>
<td>Default EDID 1080p 60</td>
</tr>
</tbody>
</table>

Software Operation

System Requirement and Precautions

1. Whenever you power off the BG-UHD-VWP-1X4 keep the device unpowered for at least 5 to 10 seconds to allow power capacitors to discharge.
2. The BG-UHD-VWP-1X4 control program is compatible with WindowOS machines connected through USB.
3. Before you click on the icon of the software, ensure you have connected your computer and the BG-UHD-VWP-1X4 via USB otherwise the software will not be able to establish a connection.

Start the software control program

When starting the control software the following window will pop up. There are two ways to control the BG-UHD-VWP-1X4.

1. USB Connection: Use a USB cable to connect to the port on the device and a computer. Select the correct virtual COM port and click the OK button.
2. Ethernet Connection: Connect either directly to the ethernet port of the device or over a network. Enter the device’s IP address and click the green Check button.

After the software control successfully connects it will enter the control interface.

Control Interface

1. Connection Status:

   Shows the connection information and status. If you use USB to connect to the device the icon will be 🌍. If you use Ethernet/IP to connect to the device the icon will shown as 🌐.
2. **Quick Selection:**

**Note:** This function is not available when the input resolution is set to 4K2K@60Hz

Here you can set the screen resolution, screen coordinates, and split screen. Select the TV picture to modify its settings. The different color frames represent different output ports of the device. The coordinate section allows modification of the TV position in the video wall. The unit also provides 8 preset spaces to save frequently used display configurations.

![Quick Selection Diagram]

**Rotation:**

**Note:** This function is only available when the input resolution is set to 1080p.

The software is capable of independently rotating each input. Users can select clockwise or counterclockwise to rotate the screen.
Output Selection and Resolution:

1. **Step 1:** Check the input resolution and choose an output resolution.

   Set the output resolution. Choose the display icon to select the output port and set the resolution. When setting a resolution the coordinates of the output will also be changed. An input source (HDMI or DisplayPort) can also be selected or lock/unlock the device.

   *Note that when you select the Synchronize function, all windows need to be set to the same resolution, otherwise the output will be abnormal.

   *If you lock the device, only the factory reset function will work.

2. **Step 2:** Output Setting

   There are three output modes that can be set: resolution, position, size and split screen. The different modes are described in step 2-1, 2-2, and 2-3.

   *Note: When you want to change to another mode you need to go back to step 2.

   - Quick Selection
   - From file
   - Custom define
3. **Step 2-1: Quick Selection**

If you choose the Quick Selection mode you can select a default screen split and rotate the screen (rotation only available when set to 1080p).

- **3x1**: This mode will divide the screen into 3 parts and rotate the figure. The remaining part shows the full screen.
- **4x1**: This mode will divide the screen into 4 parts and rotate the figure.

When selecting the 3x1 or 4x1 modes the picture in the right part of the control interface will show a red circle. You can slide this white circle to resize the output screen. In addition, you also can input the number to adjust the coordinates.

**Note**: 4K2K60 (YUV 4:4:4) can only be displayed in an 2x2 layout (1080p60 for each output)

4. **Step 2-2: Configuration From File**

You can load and read a configuration from the existing file on your PC/laptop.
5. **Step 2-3: Custom Define**

In the Custom Define mode you can define how to cut in both directions and which part you want to display on an output. If you want to estimate which part is selected click the Grid button to display a grid on the screen. After modifying the settings click the Apply button. Click the SAVE AS button to save the configuration for future usage. Modifying the setting coordinates will determine the screen location on the display.

6. **Step 3: Adjust Image**

- **Zoom In/Out:** You can change pixel size from the edge of image by clicking + and - button (the edge of image has four directions). After adjusting the image, the rest of this image will be auto-scaled to fulfill the screen.
- **Horizontal shift/Vertical shift:** You can move the image on each screen in horizontal or vertical directions and move one pixel at a time.
3. **EDID (Extended Display Identification Data)**

The EDID learning function is only necessary whenever you encounter any display on the HDMI output port that cannot play audio and video properly. Because the HDMI sources and displays may have various levels of capability in playing audio and video, the general principle is that the source will output the lowest standards in terms of audio format and video resolutions to be commonly acceptable among all HDMI displays. In this case, a 720p stereo HDMI signal output would be probably the safest choice. Nevertheless, the user can force the matrix to learn the EDID of the lowest capable HDMI display among others to make sure all displays are capable to play the HDMI signals normally.

- Select Default EDID (1-5 default EDID).

![Image of EDID settings in a video wall interface](image-url)
BZBGEAR BG-UHD-VWP-1X4 PRODUCT MANUAL

- Click [Learn] button to learn default EDID.

1. Learn EDID from Display
   - Select the Output.
   - Click [Learn] button to learn display EDID.

2. Learn EDID from File
   - Click [Load] button to select the EDID file and write it into input.

3. (4) View EDID content
   - Select the EDID input source (Input, Output or From File).
   - Click [View] button to read the EDID description and analysis.
   - Click [Save as...] button to save the EDID as a file in the connected computer.

4. Advanced Settings

   ![Advanced Settings Image]

   1. Machine Name
      You can set the machine name here up to a max length of 8 characters.
   2. Change Graph
      You can change the splash screen of the device.
      - Click the [Load Graph] button to select a splash screen.
      - After selection click the [✓] button to write it to the device.
3. Factory Reset

- Click the button to do factory reset to default settings.
- This reset process takes about 5 seconds.

- A pop-up dialog will appear which indicates the operation is complete.
  Restart the unit after clicking OK.

5. 4K2K Settings

When the input has a resolution of 4K2K@60Hz the output display will be forced into a 2x2 layout and a user can only set the output position. There are 8 preset spaces to save frequently used scenarios to the device.
6. Cloud setting-Association Code

Click the button to get an “association code”. The device can use this code to pair with a cloud server. After a successful pairing you can reset the cloud.

*The unit needs to be paired to cloud within 2 minutes after getting an association code.

7. IP Configure

Using ethernet to control the software program.

Click the button to set up a network. Click the “Read from device” button to display the current network settings.

**DHCP**: To have the network automatically assign an IP address to the device check the DHCP box and click “Write to Device.”

**Static**: To manually configure the network settings, uncheck the DHCP box and fill in the IP, Mask, and Gateway fields and then click “Write to Device.”

8. Info

Read the software and firmware version.
9. Refresh

The refresh function can refresh information for displayed settings and can also reconnect the device. You can click button to update the control connection. A “ReConnectForm” window will pop up and allow a user to select how they would like to connect to the device.

![ReConnectForm](image)

**Firmware Update through Mini-USB**

1. Please ensure the file of the new firmware is in the root directory of USB Flash Drive. The file name should be `firmware.bin`.
2. Use a mini-USB to female USB type A cable to connect the USB interface of the device and the USB Flash Drive.
3. Change the dip switches to F/W mode.
4. Power cycle the device and it will automatically start the FW update process (The process will take about 10 seconds).

**Cloud Control (IntriCloud) through Ethernet Port**

**Create Account**

The first time using the IntriCloud service, please create a new account.

1. Access IntriCloud ([http://www.intri.cloud](http://www.intri.cloud)) and click “Create new account”.

![Create Account](image)
2. The Registration page will pop up. Fill in your email and password information to create your private account.

![Create new account screen](image)

### Add Device to Intricloud

1. Ensure the device is connected to the Ethernet. Next start the software for the device to get the association code (device must be connected).
2. Access IntriCloud (http://www.intri.cloud), and then log in your account in the top right corner. Click “Add device” to select the devices you generated the code for.

![Add device screenshot](image)

3. Enter the Installer Email for online support in the future and the Association Code to pairing with your device.

![Add new device](image)

4. After adding the unit a the list of devices related to your account will show on the right top corner. You can click the button to switch the device control.

![Device list](image)
Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR’s support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

<table>
<thead>
<tr>
<th>Phone</th>
<th>Email</th>
<th>Live Chat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.888.499.9906</td>
<td><a href="mailto:support@bzbgear.com">support@bzbgear.com</a></td>
<td>bzbgear.com</td>
</tr>
</tbody>
</table>

Warranty

BZBGEAR Pro AV products and cameras come with a three-year warranty. An extended two-year warranty is available for our cameras upon registration for a total of five years.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.
Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

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